* NOTICES *

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CLAIMS

[Claim(s)]
[Claim 1] In the image processing system used in case a color picture is formed using two or more light which was formed from the white light, and from which a wavelength field differs mutually When incorporating and using the light of the specific wavelength field among those wavelength fields for one of two light which a wavelength field adjoins among said two or more light The image processing system which attenuates the video signal of the color corresponding to the light which incorporated the light of said specific wavelength field of said two light, and is characterized by adding the video signal which this attenuated to the video signal of the color corresponding to a different light from said two light.
[Claim 2] In the image processing system used in case a color picture is formed using two or more light which was formed from the white light, and from which a wavelength field differs mutually When incorporating and using the light of the specific wavelength field among those wavelength fields for one of two light which a wavelength field adjoins among said two or more light The differential signal of the video signal of the color corresponding to a different light from the video signal of the color corresponding to the light which incorporated the light of said specific wavelength field of said two light, and said two light is formed. The image processing system which attenuates said differential signal and is characterized by adding the differential signal which this attenuated to the video signal of the color corresponding to a different light from said two light.
[Claim 3] The light from which said two light is as green light as a red light, and said two light differs is an image processing system according to claim 1 or 2 characterized by being a blue light.
[Claim 4] Said addition is an image processing system according to claim 2 characterized by becoming effective when said two light has the video signal of the color corresponding to the light which incorporated said specific wavelength field between said two light larger than the video signal of the color corresponding to a different light.
[Claim 5] The image processing system according to claim 1 or 2 characterized by not performing said addition when incorporating and using the light of said specific wavelength field for neither of two light which a wavelength field adjoins among said two or more light.
[Claim 6] In the image processing system used in case a color picture is formed using two or more light which was formed from the white light, and from which a color differs mutually A detection means to detect whether some of said two or more light are used for formation of said color picture which incorporates the light of the specific wavelength field which is in one side of two light with which the purity of a color is raised, and which a wavelength field adjoins among said two or more light among those wavelength fields, An attenuation means to attenuate the video signal of the color corresponding to one [which incorporated the light of said specific wavelength field / said] light, The image processing system characterized by having an addition means to add said video signal which it attenuated to the video signal corresponding to the color of a different light from said two light, and the control means which controls said addition means based on the detection result of said detection means.
[Claim 7] In the image processing system used in case a color picture is formed using two or more light

which was formed from the white light, and from which a color differs mutually A detection means to detect whether the purity of a color is raised, and some of said two or more light incorporate the light of the specific wavelength field which is in one side of two light which a wavelength field adjoins among said two or more light among those wavelength fields, and use it for formation of said color picture, A generation means to generate the differential signal of the video signal corresponding to the color of a different light from the video signal of the color corresponding to one [which incorporates the light of said specific wavelength field / said] light, and said two light, An attenuation means to attenuate said differential signal, and an addition means to add said differential signal which it attenuated to the video signal corresponding to the color of a different light from said two light, The image processing system characterized by having the control means which controls said addition means based on the detection result of said detection means.

[Claim 8] Said addition means is an image processing system according to claim 7 characterized by becoming effective when said two light has the video signal of the color corresponding to one [which incorporates the light of said specific wavelength field / said] light larger than the video signal corresponding to the color of a different light.

[Claim 9] It is an image processing system given in any 1 term of claims 6-8 characterized by for said two light being as blue light as a red light, and the light of a different color from said two light being a blue light.

[Claim 10] Said attenuation means is an image processing system given in any 1 term of claims 6-9 characterized by having the accommodation means which makes the amount of said attenuation adjustable.

[Claim 11] Said accommodation means is an image processing system according to claim 10 characterized by having a variable resistor.

[Claim 12] It is the image processing system according to claim 10 which said attenuation means is a digital potentiometer and is characterized by said accommodation means being a microcomputer.

[Claim 13] The image processing system characterized by to have an accommodation means adjust color balance in case the light of the specific wavelength field among those wavelength fields incorporates to one side of two light which a wavelength field adjoins among two or more of said light and said color picture forms in it in the image processing system used in case a color picture is formed using two or more light which was formed from the white light, and from which a color differs mutually, and an actuation means operate this accommodation means.

[Claim 14] The projection mold display characterized by forming a color picture by having the image processing system of a publication, and two or more display devices which form the image light of each color using said two or more light in any 1 term of claims 1-13, and projecting and putting the image light of each of said color by these two or more display devices on it.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention is used for the projection mold display which indicates the image from picture signal output units, such as a personal computer, by the big screen, and relates to a suitable image processing system.
[0002]
[Description of the Prior Art] In recent years, use of a projection mold image display device has been increasing as a means to indicate the image from picture signal output units, such as a personal computer, by the big screen, and to give a lot of people a presentation. In connection with this, the purpose of using a projection mold image display device is also diversified, and the optimal color purity, color balance, an illuminance, etc. are called for according to the purpose of use.
[0003] As the light source which carries out expansion projection of the image displayed on the image display component in the projection mold image display device, discharge lamps, such as a metal halide lamp and a mercury lamp, are used. The example of the spectral distribution of the source of the white light is shown in drawing 14 . Thus, generally the source of the white light has continuous intensity distribution in the wavelength field of the 400nm - 700nm light. In a projection mold display as shown in drawing 16 , this white light is decomposed into the colored light of RGB in a color-separation system. As shown in drawing 14, although this white light has the peak to the 570nm - 600nm wavelength field, if the component of this light is incorporated for the component of green (G) colored light, green will become yellow and it will stop being able to express a green pure color easily. Moreover, if it incorporates for the component of red (R) colored light, red will become orange and it will be hard coming to express a red pure color. For this reason, in the illumination system of a projection mold display, the die clo filter DF etc. is conventionally formed in the incidence side of an image display component other than the die clo mirrors DM1 and DM2, the component of the light of a 570nm - 600nm wavelength field is removed, and it constitutes in the appearance to which the component of the light of a 570nm - 600nm wavelength field does not reach an image display component in an illumination system. Therefore, about 600nm or more is decomposed into the light of three colors by making about 505nm or less into blue, making red and about 505nm - 570nm as green. The spectral distribution of the white light compounded by the die clo prism DP when removing the component of the light of a 570nm - 600nm wavelength field to drawing 15 are shown. However, when the source of the white light which has reinforcement strong against a 570nm - 600nm wavelength field was used, since the component of the light of this field was removed, loss of the quantity of light was large.
[0004] So, the light of a 570nm - 600nm wavelength field is reflected in JP,07-072450,A. The die clo filter DF which penetrates the other light is formed between the light source and the die clo mirror DM 1. The condition of using it with the condition of not using light of a 570nm - 600nm wavelength field by inserting [filter / this / die clo] out of an optical path is made switchable. The display which gave priority to color reproduction when it was used is performed, and since the quantity of light to be used

increases when not using it, the projection mold display which could be made to perform the display which gave priority to brightness is indicated.
[0005] moreover, to Japanese Patent Application No. No. 089196 [11 to] proposed by these people For example, when the light of a 570nm - 600nm wavelength field is incorporated to red colored light, The colour selection optical element which penetrates the light of a wavelength field 600nm or more is prepared between the die clo mirror DM 2 and a red image display component. The condition of using it with the condition of not using light of a 570nm - 600nm wavelength field by inserting [optical element / this / colour selection] out of an optical path is made switchable.
[0006]
[Problem(s) to be Solved by the Invention] However, although the display which gave priority to brightness is possible when the light of a 570nm - 600nm wavelength field is used, as shown in JP,07-072450,A If the component of the light of a 570nm - 600nm wavelength field is incorporated for the component of red (R) colored light as stated also in advance, red will become orange and it will be hard coming to express a red pure color. When the component of the light of a 570nm - 600nm wavelength field is incorporated for the component of green (G) colored light, green becomes yellow and there is a problem of being hard coming to express a green pure color.
[0007] Japanese Patent Application No. No. 089196 [11 to] shows how to make natural color reproduction possible for this problem fundamentally a dissolution or in the display which made it small and gave priority to brightness.
[0008] This invention also sets it as the 1st purpose to offer the image processing system to which the above-mentioned problem is made as for natural color reproduction also a dissolution or in the case of the display which made it small and gave priority to brightness, and a projection mold display.
[0009] Moreover, this invention sets it as the 2nd purpose to offer the image processing system which enables adjustment of the color balance in the case of the display which gave priority to brightness, and a projection mold display.
[0010]
[Means for Solving the Problem] In the image processing system used in case the 1st invention of this application forms a color picture using two or more light which was formed from the white light, and from which a wavelength field differs mutually When incorporating and using the light of the specific wavelength field among those wavelength fields for one of two light which a wavelength field adjoins among said two or more light The video signal of the color corresponding to the light which incorporated the light of said specific wavelength field of said two light is attenuated, and it is characterized by adding the video signal which this attenuated to the video signal of the color corresponding to a different light from said two light.
[0011] In the image processing system used in case the 2nd invention of this application forms a color picture using three or more light which was formed from the white light, and from which a wavelength field differs mutually When incorporating and using the light of the specific wavelength field among those wavelength fields for which of two light which a wavelength field adjoins among said three or more light The differential signal of the video signal of the color corresponding to a different light from the video signal of the color corresponding to the light which incorporated the light of said specific wavelength of said two light, and said two light is formed. It is characterized by attenuating said differential signal and adding the differential signal which it this attenuated to the video signal of the color corresponding to a different light from said two light.
[0012] The 3rd invention of this application is light with said two as green light as a red light in the 1st and 2nd invention, and said two light is characterized by a different light being a blue light.
[0013] The 4th invention of this application is characterized by said addition becoming effective, when the video signal of the color corresponding to the light which incorporated the light of said specific wavelength field of said two light is larger than the video signal of the color corresponding to a different light from said two light in the 2nd invention.
[0014] The 5th invention of this application is an image processing system according to claim 1 characterized by not performing said addition when incorporating and using the light of said specific

wavelength field for neither of two light which a wavelength field adjoins among said two or more light in the 1st and 2nd invention.
[0015] In the image processing system used in case the 6th invention of this application forms a color picture using two or more light which was formed from the white light, and from which a color differs mutually Some of said two or more light are 2 which the purity of a color is raised and a wavelength field adjoins among said two or more light. A detection means to detect whether it is used for formation of said color picture which incorporates the light of the specific wavelength field which is in one side of the light of ** among those wavelength fields, An attenuation means to attenuate the video signal of the color corresponding to one [which incorporated the light of said specific wavelength field / said] light, It is characterized by having an addition means to add said video signal which it attenuated to the video signal corresponding to the color of a different light from said two light, and the control means which controls said addition means based on the detection result of said detection means.
[0016] In the image processing system used in case the 7th invention of this application forms a color picture using two or more light which was formed from the white light, and from which a color differs mutually A detection means to detect whether the purity of a color is raised, and some of said two or more light incorporate the light of the specific wavelength field which is in one side of two light which a wavelength field adjoins among said two or more light among those wavelength fields, and use it for formation of said color picture, A generation means to generate the differential signal of the video signal corresponding to the color of a different light from the video signal of the color corresponding to one [which incorporates the light of said specific wavelength field / said] light, and said two light, It is characterized by having an attenuation means to attenuate said differential signal, an addition means to add said differential signal which it attenuated to the video signal corresponding to the color of a different light from said two light, and the control means that controls said addition means based on the detection result of said detection means.
[0017] The 8th invention of this application is characterized by becoming effective [said addition means], when the video signal of the color corresponding to one [which incorporates the light of said specific wavelength field / said] light is larger than the video signal corresponding to the color of a different light from said two light in the 7th invention. The 9th invention of this application is light with said two as blue light as a red light in the 6th - the 8th invention, and light of a different color from said two light is characterized by being a blue light.
[0018] As for said attenuation means, the 10th invention of this application is characterized by having the accommodation means which makes the amount of said attenuation adjustable in the 6th - the 9th invention.
[0019] The 11th invention of this application is characterized by said accommodation means having a variable resistor in the 10th invention.
[0020] In the 10th invention, said attenuation means of the 12th invention of this application is a digital potentiometer, and it is characterized by said accommodation means being a microcomputer.
[0021] In the image processing system used in case the 13th invention of this application forms a color picture using two or more light which was formed from the white light, and from which a color differs mutually It is characterized by having an accommodation means to adjust color balance in case the light of the specific wavelength field among those wavelength fields is incorporated to one side of two light which a wavelength field adjoins among said two or more light and said color picture is formed in it, and an actuation means to operate this accommodation means.
[0022] The 14th invention of this application is characterized by forming said color picture by projecting and piling up the image of each of said color by two or more display devices which display the image of each color on any 1 term of the 1-13th invention as the image processing system of a publication using said two or more light, and these two or more display devices.
[0023]
[Embodiment of the Invention] (Operation gestalt 1) The operation gestalt 1 is hereafter explained to a detail with reference to a drawing.
[0024] The color correction circuit of the image processing system in this operation gestalt 1 and each

remaining operation gestalt mentioned later is used for a projection mold display, and with the thing of the conventional example of drawing 16 , although the configuration of this display is fundamentally the same Unlike the conventional example, at least one of the die clo IKKU filters DF (R) and DF (G) which are colour selection optical elements can insert to the optical path on which they are put (attachment and detachment). By these insertion and detachment It is possible to change the display which gave priority to color reproduction nature (color purity), and the display which gave priority to brightness. In addition, the basic configuration of a display can also take [Japanese Patent Application No. / JP,7-72450,A or Japanese Patent Application No. No. 89196 / 11 to / which were mentioned above] the configuration of a publication.

[0025] Drawing 1 is the block diagram showing the configuration of the color correction circuit in this operation gestalt 1. For 1, as for a switching means and 3, in drawing 1, a detection means and 2 are [an attenuation means and 4] the addition means of a video signal. Here, the source of the white light has the spectral characteristic shown in drawing 14 like the conventional example, and it decomposes about 600nm or more into the light of three colors by making about 505nm or less into blue, making red and about 505nm - 570nm as green. Under these conditions, by evacuating the colour selection optical element DF (R) from an optical path, the light of the 570nm - 600nm wavelength field which are red and green middle is incorporated in red light, and the display of brightness priority is realized. Therefore, the detection means 1 detects whether the light of a 570nm - 600nm wavelength field is used as a red light by distinguishing the location of the colour selection optical element DF (R), when the colour selection optical element DF (R) is out of an optical path and uses the light of a 570nm - 600nm wavelength field as a red light, closes a switching means 2 and connects a red video signal to the attenuation means 3. The attenuation means 3 attenuates a red video signal at a predetermined rate. The red video signal which it attenuated is added with a blue video signal with the addition means 4, and turns into a latter blue video signal.

[0026] This actuation is shown in the wave form chart of drawing 2. Thus, by adding the blue signal of the reinforcement corresponding to the reinforcement of a red video signal, blue incident light is superimposed on red incident light, and the color reproduction field in the display of brightness priority is amended. It is realized by inserting [optical element / (R) / DF / colour selection] as opposed to an optical path according to the change device in which it does not illustrate whether the light of the 570nm - 600nm wavelength field between red and the wavelength field of each green light is used as mentioned above. For example, when the colour selection optical element DF (R) is inserted into an optical path, light of a 570nm - 600nm wavelength field is not used, but when it escapes from the inside of an optical path from the colour selection optical element DF (R), the light of a 570nm - 600nm wavelength field is used. Therefore, the detection means 1 is exactly detecting the location concerning insertion and detachment of this colour selection optical element.

[0027] The configuration of a more detailed color correction circuit is shown in drawing 3, and the actuation is explained.

[0028] 11 is an operational amplifier and has connected the inversed input terminal and the output terminal through a feedback resister 13. A blue video signal is inputted into an inversed input terminal through resistance 12. Furthermore, a red video signal is inputted into an inversed input terminal through a switch 2 and resistance 43. The non-inversed input terminal of an operational amplifier 11 is connected to touch-down or constant potential. The inversed amplifier consists of an operational amplifier 11, a feedback resister 13, and resistance 12. By setting up the value of resistance 43 more greatly than the value of a feedback resister 13, the attenuator consists of an operational amplifier 11, a feedback resister 13, and resistance 43. Moreover, the adder is constituted by connecting a blue video signal and a red video signal to the inversed input terminal of an operational amplifier 11 through resistance 12 and resistance 43, respectively. In this configuration, if it is detected that the colour selection optical element DF (R) is in an optical path with the detection means 1, since a switch 2 will open, an operational amplifier 11 operates only as an inversed amplifier, and a pure blue signal is outputted. If it is detected by the detection means 1 that there is no colour selection optical element DF (R) into an optical path, a switch 2 will close and a red video signal will be inputted into the inversed

input terminal of an operational amplifier 11 through resistance 43. In this case, an operational amplifier 11 outputs the signal with which the blue video signal and the red video signal which it attenuated were added while attenuating a red video signal. An operational amplifier 14 and resistance 15 and 16 constituted the inversed amplifier, and have returned again the video signal which was reversed with the operational amplifier 11 and became negative polarity to the video signal of straight polarity. Operational amplifiers 21 and 24 and operational amplifiers 31 and 34 are inserting delay of a red video signal and a green video signal in a signal path with the same configuration as operational amplifiers 11 and 14 for the purpose of doubling with delay of a blue video signal, respectively. In addition, the case where the amplitude of the blue video signal after adding a red video signal in this configuration exceeds the input level of the next step can be considered. In this case, it is necessary to prepare a limiter etc. in the appearance which signal level does not become more than fixed.

[0029] An operation of the color reproduction when performing color correction is explained using drawing 4 R> 4, and 5 and 6. When the colour selection optical element DF (R) is in an optical path, the field of the triangle shown by R1, G1, and B1 of drawing 4 turns into a color reproduction field, and the color reproduction with high purity of it becomes possible in each monochrome of RGB. Therefore, the image expression which gave priority to color reproduction can be performed. Since the light of a 570nm - 600nm wavelength field will be added to a red optical path if the colour selection optical element DF (R) is extracted out of an optical path, image display which gave priority to brightness can be performed, but since it becomes the triangle shown by R2, G1, and B1 of drawing 5 and a red reappearance field shifts in the green direction if it remains as it is, red will turn into orange. Then, by adding blue colored light to red using a color correction circuit, the red reappearance field R2 is shifted in the direction of blue like the triangle shown by R3, G1, and B1 of drawing 6 . Thus, also in the image display which added the light of a 570nm - 600nm wavelength field, and gave priority to brightness, more natural color reproduction becomes possible by shifting a red reappearance field to a blue side.

[0030] In addition, although this operation gestalt showed the configuration at the time of incorporating the light of a 570nm - 600nm wavelength field to red colored light, when incorporating the light of a 570nm - 600nm wavelength field to green colored light by evacuating the colour selection optical element DF (G) whose insertion and detachment were enabled in drawing 16 out of an optical path, it considers as the configuration which adds a green video signal to a blue video signal as shown in drawing 17 . An operation of the color reproduction in this configuration is shown in drawing 18 . When the light of a 570nm - 600nm wavelength field is incorporated to green light and it considers as a brightness priority display, a green chromaticity coordinate will shift to a red person like G1 to G2, and green will turn into yellowish green. Then, also in the image display which gave priority to brightness, more natural color reproduction is made possible by adding blue colored light green using a color correction circuit, and shifting a color coordinate to a blue side like G3 from G2.

[0031] By the way, signal processing of an image display device has composition generally shown in drawing 7 . In drawing 7 , the video signal inputted is changed into a digital signal with A/D converter 51, and is inputted into a digital disposal circuit 52. In a digital disposal circuit 52, digital processing is performed so that it may become the signal which was suitable for the image display component in the video signal inputted by carrying out digital conversion. After the video signal by which digital processing was carried out is changed into an analog video signal with D/A converter 53, it is inputted into each image display components 55, 56, and 57 of RGB via a driver 54, and displays an image. Therefore, as shown in drawing 8 as a location which inserts a color correction circuit, it can arrange in front of A/D converter 51. In this case, digital processing will be performed to the video signal by which color correction was carried out. Moreover, as shown in drawing 5 c as a location which inserts a color correction circuit, it can also arrange behind D/A converter 53. In this case, color correction will be performed to the video signal after digital processing was performed. Furthermore, the video signal inputted is once changed into a digital signal with A/D converter 51 so that the configuration of drawing 7 may show. Therefore, it is also possible to perform color correction processing by digital processing. In this case, what is necessary is to incorporate a function equivalent to the block diagram shown in drawing 1 to a digital disposal circuit 52, and just to constitute from a digital circuit.

[0032] According to the operation gestalt 1, as explained above, when it considers as the display which gives priority to brightness using the light of a 570nm - 600nm wavelength field, in case the color which incorporates the light of a 570nm - 600nm wavelength field is displayed, by adding blue glow, a chromaticity coordinate can be amended and color reproduction with more sufficient balance can be realized.
[0033] (Operation gestalt 2) Drawing 10 is the block diagram showing the color correction circuit concerning the operation gestalt 2.
[0034] For a detection means and 2, as for a subtraction means and 3, a switching means and 5 are [1 / an attenuation means and 4] the addition means of a video signal. Here, the source of the white light has the spectral characteristic shown in drawing 14 like the conventional example, and it decomposes about 600nm or more into the light of three colors by making about 505nm or less into blue, making red and about 505nm - 570nm as green. Under these conditions, by the same technique as an example 1, the light of the 570nm - 600nm wavelength field which is the middle of the wavelength field of red and a green light is incorporated in red light, and the display of brightness priority is realized. Therefore, when detecting whether the light of a 570nm - 600nm wavelength field is used and using the light of a 570nm - 600nm wavelength field, the detection means 1 closes a switching means 2, and connects a red video signal to the subtraction means 5. The subtraction means 5 generates the differential signal of a red video signal and a blue video signal, and the attenuation means 3 attenuates said differential signal to 1-/N. The differential signal which 1-/N attenuated is added with a blue video signal with the addition means 4, and turns into a latter blue video signal.
[0035] This actuation is shown in the wave form chart of drawing 11 . The description of the actuation in this operation gestalt is added as color correction to a blue video signal, only when a red video signal is larger than a blue video signal. Also when a red video signal is smaller than a blue video signal, supposing it is effective, the difference of a red video signal and a blue video signal will serve as a negative value, and will become the factor which the own amplitude of a blue video signal decreases and loses color balance conversely.
[0036] Next, a more detailed configuration is shown in drawing 12 and the actuation is explained. 11 is an operational amplifier, carries out direct continuation of an inversed input terminal and the output terminal, and considers as a voltage follower, and a blue video signal is inputted into a non-inversed input terminal. Moreover, 41 is an operational amplifier and has connected between an inversed input terminal and output terminals through diode 42. By connecting an anode to the output terminal of an operational amplifier 41, diode 42 makes the operational amplifier 41 the voltage follower of only the current source. A red video signal is inputted into the non-inversed input terminal of an operational amplifier 41. The output of the voltage follower constituted from an operational amplifier 41 and diode 42 is connected to the output terminal of an operational amplifier 11 through a switch 2, resistance 43, and resistance 17. Here, the subtraction means 5 shown in drawing 5, the attenuator 3, and the addition means 4 consist of an operational amplifier 11, an operational amplifier 41, resistance 17, and resistance 43. The damping ratio of an attenuator 3 is set up by the ratio of resistance 17 and resistance 43. In this configuration, if it is detected that a colour selection optical element is in an optical path with the detection means 1, since a switch 2 will open, connection of an operational amplifier 41 and an operational amplifier 11 is separated, and only a pure blue signal is outputted. If it is detected by the detection means 1 that there is no colour selection optical element into an optical path, a switch 2 will close and connection of an operational amplifier 41 and an operational amplifier 11 will become effective. If a red video signal is larger than a blue video signal at this time, a current will flow toward an operational amplifier 11 through resistance 17 and resistance 43 from an operational amplifier 41. Therefore, it becomes the signal added to the blue video signal into which the value which carried out resistance division of the difference of a red video signal and a blue video signal by resistance 17 and resistance 43 is inputted as a blue video-signal output. Conversely, if a red video signal is smaller than a blue video signal, although a current tends to flow toward an operational amplifier 41 from an operational amplifier 11, it will be prevented by the diode 42 connected to the output of an operational amplifier 41, and a current will not flow. Therefore, the blue video signal inputted serves as a blue

video-signal output as it is. An operational amplifier 21, resistance 27 and an operational amplifier 31, and resistance 37 are inserting delay of a red video signal and a green video signal in a signal path for the purpose of doubling with delay of a blue video signal with the same configuration as the operational amplifier 11 and resistance 17 in a blue video signal, respectively.

[0037] In addition, although this operation gestalt showed the configuration at the time of incorporating the light of a 570nm - 600nm wavelength field to red colored light, when incorporating the light of a 570nm - 600nm wavelength field to green colored light, it considers as the configuration which adds a green video signal to a blue video signal, as mentioned above.

[0038] Moreover, although this operation gestalt shows the example which processes color correction with an analog signal, processing with a digital signal is also possible. In that case, what is necessary is for a function equivalent to the block diagram shown in drawing 10 just to consist of digital circuits.

[0039] According to the operation gestalt 2, as explained above, when it considers as the display which gives priority to brightness using the light of a 570nm - 600nm wavelength field, in case the color which incorporates the light of a 570nm - 600nm wavelength field is displayed, by adding blue glow, a chromaticity coordinate can be amended and color reproduction with more sufficient balance can be realized.

[0040] Furthermore, since an addition means becomes effective only when the video signal of the color which incorporates the light of a 570nm - 600nm wavelength field is larger than a blue video signal, when the video signal of the color which incorporates the light of a 570nm - 600nm wavelength field is smaller than a blue video signal, it can prevent an original blue video signal becoming small and losing color balance by adding a differential signal.

[0041] (Operation gestalt 3) The configuration of the color correction circuit which starts the operation gestalt 3 at drawing 13 is shown.

[0042] 41' is an operational amplifier with a disable function, and since an operational amplifier output will be in a hi-z state at the time of a disable, if it thinks that the operational amplifier 41 and switch 2 in the operation gestalt 2 were unified, it is equivalent to the operation gestalt 2 as actuation.

[0043] (Operation gestalt 4) Drawing 19 is the block diagram showing the color correction circuit concerning the operation gestalt 4.

[0044] The basic block is the same as that of what was shown with the operation gestalt 1, and is the configuration which added the amount control means 6 of attenuation which controls the amount of attenuation of the attenuation means 3. A more detailed configuration is shown in drawing 20, in order to simplify explanation, the same sign is given to the same part as the above-mentioned operation gestalt 1, explanation is omitted, and only difference is explained. The subtraction means 5 shown in drawing 19, the attenuator 3, and the addition means 4 consist of an operational amplifier 11, an operational amplifier 41, resistance 17, and variable-resistance 43'. The damping ratio of an attenuator 3 is set up by the ratio of resistance 17 and variable-resistance 43'. In this configuration, it becomes possible by controlling the resistance of variable-resistance 43' by the amount control means 6 of attenuation to adjust the amount of attenuation. Moreover, it becomes possible to adjust electronically, using a digital potentiometer, then the amount control means 6 of attenuation as a microcomputer for variable-resistance 43'.

[0045] An operation of the color reproduction when performing color correction is explained using drawing 21. When it considers as the image display which added the light of a 570nm - 600nm wavelength field, and gave priority to brightness, although a red color coordinate shifts to a green side like R2, it is shifted in the direction of blue by the color correction circuit. Since it can carry out adjustable [of the amount of amendments by the color correction circuit] at this time, a red color coordinate can be set as the coordinate of the arbitration of coordinates R2 and R3 like R3', and the color reproduction according to liking of a user of it becomes possible.

[0046] In addition, although this example showed the configuration at the time of incorporating the light of a 570nm - 600nm wavelength field to red colored light, when incorporating the light of a 570nm - 600nm wavelength field to green colored light, it considers as the configuration which adds a green video signal to a blue video signal, as mentioned above.

[0047] Moreover, although this example shows the example which processes color correction with an analog signal, processing with a digital signal is also possible. In that case, what is necessary is for a function equivalent to the block diagram shown in drawing 19 just to consist of digital circuits.
[0048] As explained above, when according to the operation gestalt 4 considering as the display which gives priority to brightness using the light of a 570-600nm wavelength field and amending a chromaticity coordinate, color reproduction according to liking of a user can be realized by carrying out adjustable [of the amount of attenuation].
[0049] (Operation gestalt 5) Drawing 22 is the block diagram showing the color correction circuit concerning the operation gestalt 5.
[0050] A basic block is the configuration which added the amount control means 6 of attenuation which shows with the operation gestalt 2 and controls the amount of attenuation of the attenuation means 3.
[0051] A more detailed configuration is shown in drawing 23, in order to simplify explanation, the same sign is given to the same part as the above-mentioned operation gestalt 1, explanation is omitted, and only difference is explained. The subtraction means 5 shown in drawing 22, the attenuator 3, and the addition means 4 consist of an operational amplifier 11, an operational amplifier 41, resistance 17, and resistance 43'. The damping ratio of an attenuator 3 is set up by the ratio of resistance 17 and resistance 43'. In this configuration, it becomes possible by controlling the resistance of variable-resistance 43' by the amount control means 6 of attenuation to adjust the amount of attenuation. The effectiveness of amendment of a color coordinate is as the operation gestalt 4 having explained using drawing 21.
[0052] Moreover, it becomes possible to adjust electronically, using a digital potentiometer, then the amount control means 6 of attenuation as a microcomputer for variable-resistance 43'.
[0053] In addition, in this example, the configuration at the time of incorporating the light of a 570nm - 600nm wavelength field to red colored light is shown, and when incorporating the light of a 570nm - 600nm wavelength field to green colored light, it considers as the configuration which adds a green video signal to a blue video signal, as mentioned above.
[0054] Moreover, although this example shows the example which processes color correction with an analog signal, processing with a digital signal is also possible. In that case, what is necessary is for a function equivalent to the block diagram shown in drawing 22 just to consist of digital circuits.
[0055] As explained above, when according to the operation gestalt 5 considering as the display which gives priority to brightness using the light of a 570-600nm wavelength field and amending a chromaticity coordinate, color reproduction according to liking of a user can be realized by carrying out adjustable [of the amount of attenuation].
[0056] (Operation gestalt 6) Drawing 24 is drawing showing the projection mold image display device concerning this example.
[0057] As for a projection mold image display device and 101, 100 is [a control unit and 102] color balance actuation means. The projection mold image display device 100 has the display capabilities which give priority to brightness using the light of a 570-600nm wavelength field, and the color balance actuation means 102 is an actuation tongue arranged at the control unit 101 of the projection mold image display device 100, and it is being interlocked with variable-resistance 43' in the color correction circuit shown with the operation gestalten 4 and 5. Color balance according to liking of a user is realized by operating this actuation means 102 manually.
[0058] Moreover, when variable-resistance 43' in a color correction circuit is constituted from a digital potentiometer, or when the color correction circuit itself is constituted from a digital circuit, actuation of a control unit 101 realizes color balance according to liking of a user from the menu display by the on-screen display function.
[0059] As explained above, when a chromaticity coordinate is amended as a display which gives priority to brightness using the light of a 570-600nm wavelength field according to the operation gestalt 6, according to liking of a user, color balance of arbitration can be realized easily.
[0060]
[Effect of the Invention] As explained above, when considering as the display which gave priority to brightness using the light of a specific wavelength field according to this invention, the good image of

color balance can be displayed by detecting using the light of this specific wavelength field, and performing color correction. Furthermore, the color balance (reappearance) according to liking of a user is realizable by carrying out adjustable [of the amount of color correction] to arbitration.

[Translation done.]